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POLICY RESEARCH WORKING PAPER 1578

Stock Market and Investment

The Governance Role of the Market

Cherian Samuel

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Summary findings

Institutional investors have become tremendously important in U.S. capital markets in recent years. But a study of 557 U.S. manufacturing firms (1985–90) shows the role of such investors to be mixed. Results show the following:

- Institutional ownership has a positive effect on capital spending but apparently a negative effect on research and development spending and no effect on advertising expenditures. So, institutional ownership might contribute to a firm's underinvestment in intangible assets and hence exacerbate managerial myopia.
- Institutional investors are complex institutions, so the regulatory and investment environment in which they operate must be carefully designed. The institutionalization of the stock market (its domination by institutional investors rather than individuals) happened gradually in the United States and some other industrial countries and may happen gradually in developing countries as their financial markets are reformed and deepened.
- There is a fundamental conflict between liquidity and control as objectives on institutional investment. In the United States, liquidity has been the dominant objective and "exit" rather than "voice" has been the preferred option of institutional investors on corporate governance issues. But recently "voice" has begun to be a more important objective.
- Institutional investors' monitoring and disciplinary activities may (through corporate governance) substitute for the disciplinary and signaling roles of debt. But there is no definite evidence that institutional ownership by itself improves firm performance. Still, activism by institutional investors has replaced takeovers as the central mechanism of corporate government in the United States in the 1990s.

The implication for developing countries: encourage institutional ownership of equity, and promote activism among institutional investors.

The U.S. experience cannot always be generalized to other countries, but it does demonstrate that such activism can be a viable alternative to takeovers as a vehicle for corporate governance. It is also important for curbing the excesses of managerial discretion and maximizing shareholder values.

This paper is a product of the Operations Policy Group, Operations Policy Department. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Cherian Samuel, room S13-059, telephone 202-473-0802, fax 202-477-6987, Internet address csamuel@worldbank.org. March 1996. (45 pages)

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Stock Market and Investment: The Governance Role of the Market*

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Stock Market and Investment: The Governance Role of the Market

In a market economy, the stock market performs three basic functions: (i) a source for financing investment; (ii) a signalling mechanism to managers regarding investment decisions; and (iii) a market for corporate control in reallocating existing resources and promoting managerial and organizational efficiency. Stock market activity also has other implications for firms like the role of shareholder and managerial horizons with regard to investment decisions of firms and the consequences of the steady increase in institutional ownership of equity for corporate governance, firm's choices with regard to tangible and intangible investments etc..

This paper focusses on the governance role of the stock market[1], based on the evidence for institutional investors for a sample of U.S. manufacturing firms, seeking to draw lessons which would enhance the corporate governance process in developing countries. The paper is organized into two main sections. Section I starts with a detailed discussion of the issues posed by the rapidly increasing institutional ownership of corporate equity in the U.S.. Following this, the various hypotheses to be tested empirically are enumerated. Section II contains the results and the discussion of the various empirical tests and draws together the implications for developing countries.

-I-

Analytical issues

It is well-known that the role of institutional investors has become tremendously important in the U.S. capital markets in recent years. From about 15 percent of total financial

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[1] Samuel (1995a) deals with the financing role of the market and Samuel (1995b) deals with the signalling role of the market.

assets in 1970, the share of institutions has grown to 22 percent in 1992.[2] Within the class of institutional investors, the relative importance, based on their investments, is as follows: (1) pension funds; (2) mutual funds; (3) insurance companies; (4) non-pension bank trusts; and (5) foundations/endowments. The consequences of this increased institutional equity ownership on both the liquidity of the U.S. stock markets and the performance of U.S. corporations has been a matter of intense debate among economists.

Critics like Lowenstein (1988), assert that the rapid institutionalization of the stock market has adversely affected the stock market as well as corporations. A common argument holds that money managers of institutional funds are obsessed with their funds' quarterly performance, which results in excessive and myopic trading. In turn, these trading practices effectively raise the cost of equity financing. In addition, Jacobs (1991) suggests that the growing importance of institutional investors in financial markets has led to the "commoditization" of corporate ownership and the market for corporate control.

It has often been asserted that the growing importance of institutional investors is responsible for the increased share turnover in the market. One piece of evidence often cited to support this argument is that block trading (trades of 10,000 shares or more) as a percentage of total trading volume has become quite high. Block trading accounted for 54.5 percent of all shares traded on the New York Stock Exchange in 1988.[3] Lowenstein (1988) has argued that since these large block trades are almost exclusively done by institutions, and since small block trades (as small as 1,000 shares) are also made largely by institutions, institutions probably

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[2] See Brancato (1992) for details.

[3] See New York Stock Exchange Fact Book, 1989, p.73.

account for 75 percent of all trading--substantially more than the fraction of shares they own.

If one counts the volume of trade in derivative securities--index futures, options, and over-the-counter synthetic equities markets--then the increase in effective turnover of stocks would be more dramatic than the NYSE turnover figures indicate. Lowenstein (1988) found that the high turnovers impose an exorbitant burden (tax) on the funds that are being churned, and reduced the underlying stream of income by about one-sixth. In fact, the annual stock turnover "tax" roughly equalled the value of the new stocks issued each year for cash, which of course is the primary reason for having a stock market.

The high turnover of institutional portfolios is taken as suggestive that they are more speculative than are individual investors. However, as noted by Shiller (1992), the evidence is far from conclusive about the propensity of institutional investors to engage in speculative behavior. There is a common perception that institutional investors are subject to an incentive system that rewards short-term returns than are individuals, many of whom have long investment horizons. However, there does not appear to be any conclusive evidence that institutional investors ignore the long-term profitability of the companies they invest in any more than individual investors when they dominated the trade in the stock market earlier.

Part of the problem is that investment managers are evaluated on too short term a basis--and are not often not given adequate time to manage their portfolios well. As noted by Shiller (1992), some corporate clients of portfolio managers reportedly use the 12/24 rule, which is to fire any portfolio manger whose performance is 12 percent under the S&P 500 index for any 24-month period.

On the other hand, Jones et al. (1990) argue that the dramatic increase in trading volume

that has accompanied the growth in institutional ownership in U.S. stock markets during the 1980s has in fact enhanced stock market liquidity, and thereby lowered the required return on equity and therefore the cost of capital. Also, institutions, with their large professional staffs, are likely to be more efficient than individual investors at collecting, analyzing, and acting on objective, firm-specific fundamental information. Therefore, the increased institutionalization of the U.S. capital markets has actually served to improve the efficiency with which corporations are valued and governed. Instead of retarding aggregate long-term corporate investment, the growth in institutional equity ownership simply may have redirected capital from firms with less promising investment projects towards firms with more profitable investment projects.

Jones et al. (1990) tested these hypotheses for a sample of 586 U.S. firms for 1982 and 1988. They conclude that institutions have had a positive effect on liquidity; stocks traded heavily by institutions experienced rising turnover, declining volatility and narrowing bid-ask spreads. In other words, institutional investors helped in lowering the required return on equity capital and therefore the cost of capital for the sample firms. Also, the analysis of corporate R and D expenditures showed no strong evidence that institutions induce short-termist (myopic) behavior amongst corporate management. In general, the study found no support for the criticisms often aimed at institutional investors.

These findings are also consistent with those of Jarrel et al. (1985). The study found that, holding industry effects constant, institutional ownership had a positive effect on the R and D behavior of companies, for a sample of 324 companies for the 1980-83 period. i.e., Institutional investors seem to favor firms with high R and D to revenue ratios.

Likewise, using UK data, Nickell and Wadhwani (1987) found that while the stock

market attached too high a weight to current dividends--which is consistent with the belief that the market is myopic--they found no evidence to link this myopic behavior with increases in institutional ownership of equity. Also, Lakoshinok et al. (1992) find no solid evidence for the hypothesis that institutional investors destabilize the prices of individual stocks.

As noted by Scholes (1991), some of the increase in share turnover from the early 1980s and late 1970s is explained by the increase in the number of cash tender offers and the growth of share repurchases and recapitalizations that started in the early 1980s and grew dramatically after 1984.

Many pension funds use so-called asset allocation techniques. If managers feel that stocks as a group are overvalued relative to bonds, they sell stocks and move into bonds. This creates turnover, but has little to do with the horizons of corporate investment projects. In addition, pension fund managers trade in securities to adjust their holdings of market sectors. They sell and buy baskets or bundles of these securities to effect their changing policies. This too creates turnover but is decoupled from a specific corporation's investment decision making. Also, many investment managers use the futures and options markets to hedge their risks or to increase their returns by creating synthetic securities. By hedging, they can concentrate their holdings in specific stocks or sectors, which they believe will increase in value, while reducing risks (that is, market wide risk that they cannot control). These futures and options market trades create short-term trading volume that is again decoupled from specific corporate investment decisions.

Although a transactions tax or a capital gains tax on short-term trading by pension funds will reduce turnover, it is not clear that it will solve the long-run corporate investment problem.

Some commentators have argued that, since 1986, U.S. tax policy has increased the cost of capital to U.S. corporations and reduced their investment horizons. A transactions tax will reduce liquidity in the stock market. A liquid securities market increases investor demand for securities and lowers the corporate cost of capital. To reduce liquidity through a transactions tax will increase corporate capital costs, reduce the number of market makers, reduce demand for trading, and hurt options and futures markets, which rely on more frequent trading to effect portfolio strategies.

Vishny (1991) argues that the biggest effects of a transactions tax are likely to be felt in the currently highly liquid markets for such instruments as government bond futures and options and stock index futures and options. However, a lot of market participants use these instruments to frequently rebalance their portfolios and hedge risks at low cost and not simply take zero-sum bets against other market participants. By substantially increasing the cost of trading, a transactions tax would severely restrict this risk management behavior.

An important backdrop to this discussion is to note that in practice, institutions are legally required to be extremely diverse and are barred from holding significant shares of the ownership of any one corporation. For instance, the Investment Company Act of 1940, which followed the collapse of investment trusts, set minimum levels of diversification for mutual funds and precluded them from holding more than 10 percent of a company's stock. Complaints about the self-serving management and the underfunding of corporate pension funds led Congress to pass the Employee Retirement Income Security Act (ERISA) in 1974. ERISA prohibits pension plans from holding more than 10 percent of the sponsor's own stock or 5 percent of any other company's stock and specifies conservative rules for pension fund trustees.

There is a view in the literature, principally associated with academics from the law schools, that emphasizes the political forces that shaped the modern American corporation. Perhaps the best description of this approach can be found in Roe (1994, 1991, 1990). The principal plank of the argument is that the Berle/Means corporation, in which ownership and control are separated, was not "an inevitably natural consequence" of the economic and technological forces that shaped modern capitalism, but rather was an adaptation to political forces that limited scale, scope, and power of financial institutions. Roe (1991) has suggested that, in the absence of these politically imposed constraints, the evolution of the modern U.S. corporation might have resulted in the emergence of a very different dominant organizational form, one more nearly resembling the Japanese or German industrial system in which financial institutions are the major shareholders of, and closely monitor, industrial corporations. Black (1990), Gilson and Kraakman (1991), Grundfest (1990), and Pound (1990) have also advocated the overregulation thesis that the monitoring capacity of institutional investors has been inhibited by excessive regulation. Proponents of the overregulation hypothesis have argued that Securities and Exchange Commission (SEC) and banking regulation has hobbled institutional investors, resulting in high agency costs, weak capital market discipline, and managerial entrenchment. All these new critics tend to favor deregulation of financial institutions so that they can serve as more effective corporate monitors. For many of these critics, the relationship between financial institutions and corporate managements in the German and Japanese economies provides the relevant model.

On the other hand, defenders of corporate management seem equally convinced that, unless their power is checked, institutional investors will soon dominate corporate managements.

As a result, they have advanced a very different set of policy proposals, which seek to subject institutional investors to greater oversight. Typically, these proposals have portrayed institutional investors not as highly constrained and overly regulated entities, but as financial adolescents, recklessly preoccupied with short-term profit maximization. One example is the 1989 Report of the New York State Task Force on Pension Fund Investment, which recommended that public pension funds be subjected to greater legislative control and guidance. Another even more ominous signal for institutional investors was the passage in 1990 of a Pennsylvania statute under which institutional investors could be forced to disgorge their profits on the sale of a Pennsylvania-chartered corporation's stock, if they participated in a control group. Alarmed by the power and what they perceive as the short-term mentality of institutional investors, Lipton and Rosenblaum (1991) have suggested an even more sweeping change: abolition of the annual election of directors in favor of a quinquennial election. What is however, common to these polar views of the institutional investors is the assumption that, for better or worse, institutional investors would soon dominate corporate managements in the absence of political constraints.[4]

However, Coffee (1991) disagrees with this assumption and argues instead that the primary explanation for institutional passivity is not overregulation, but the insufficiency of existing incentives to motivate institutional money managers to monitor. Although proponents of institutional activism have analyzed at length the potential ability of institutional investors to hold corporate managers accountable, they have largely ignored the question of who holds

[4] It is interesting to note that Jensen (1989) and Roe (1990) argue that the evolution of leveraged buy-out firms constitute a market response to legal restrictions on activist management by institutional investors.

institutional managers responsible. The problem of agency costs is particularly complicated in the case of institutional investors.

In particular, the usual mechanisms of corporate accountability are either unavailable or largely compromised at the institutional level. For instance, while corporate managements are subject to the disciplinary threat of hostile takeovers, proxy fights, and other corporate control transactions, the management of most institutional investors are not. Only in the case of a closed-end mutual fund is a takeover even conceivable, and actual instances of such takeovers are virtually unknown. Other forms of capital market discipline are also lacking with regard to institutional investors: while banks and other creditors can pressure corporate managements that are underperforming, pension funds are immune from similar capital market pressure because they are creditors, not debtors. In the case of defined benefit pension plans (but not defined contribution plans), the corporate sponsor does have an incentive to remove a substandard investment manager (in order to reduce the future contribution it must make), but management of the corporate sponsor is itself subject to a conflict of interest on the issue of whether it wishes its pension managers to engage in active shareholder monitoring of corporate managements.

As noted by Coffee (1991), there may be two other reasons, why agency costs will be higher at the institutional level than at the corporate management level. First, the problem of collective action is potentially more severe at the institutional investor level than at the corporate level. Not only are the beneficiaries of a pension fund as dispersed as the shareholders in large corporations, there is no analogue in the pension fund context to the large shareholder in the public corporation who may be willing to undertake monitoring and similar expenditures that benefit other shareholders. In other words, the free-rider problem associated with shareholder

monitoring is much more severe for institutional investors compared to public corporations. Second, one of the basic techniques in corporate governance for aligning managerial and shareholder preferences is the use of executive compensation devices, such as the stock option, that give managers an incentive to maximize value for shareholders. Such executive compensation formulas are less used and more difficult to design for institutional investors.

In other words, the critics appear to have overstated the importance of overregulation. Consequently, deregulation alone is not an adequate policy response. Coffee (1991) argues that other factors like conflicts of interest, a preference for liquidity, and collective action deserve greater weight in any theory of institutional investor behavior. In particular, there exists a trade-off between liquidity and control. Investors that want liquidity may hesitate to accept control.

Therefore Coffee (1991) proposes that there are three distinctive hypotheses that can explain the passivity of institutional investors: (1) an "interest group" story (Roe and others) that views regulation as chilling institutional investor participation in corporate governance as the product of low-visibility political coalitions between management and other groups; (2) a collective action story (based on Olson (1971), Rock (1991)) that views the cost of organizing dispersed investors to be sufficiently high as to make them rationally apathetic about participation in corporate governance; and (3) a public interest story suggesting that regarding legislation and administrative rules, the public has long resisted the union of liquidity and control. The last two approaches have received less attention compared to the first approach, since economic theorists, ever wary of regulation, have tended to view the regulation of financial institutions as intended to entrench corporate managements.

Hypotheses to be tested

There are a number of interesting hypotheses that can be tested with regard to the role of institutional investors. The most obvious hypothesis perhaps is to test whether institutional ownership is detrimental to long-term investments. In other words, does institutional ownership put too much capital market pressure on the firm and does it force the firm to forgo long-term investments. This is therefore closely related to the issue of whether shareholder myopia leads to managerial myopia or not.[5]

This hypothesis can be tested in a univariate framework by dividing the firms into two classes on the basis of the median values of institutional ownership and comparing the values of tangible and intangible investments for the two sets of firms. If institutional ownership has a detrimental effect on investment behavior, firms with high levels of institutional ownership can be expected to have low levels of tangible and intangible investments and vice versa. The reverse evidence would indicate that institutional ownership has a positive effect on the firm's investments.

In addition, institutional ownership can be used as an additional right hand side variable in a standard regression of capital expenditures, R and D expenditures, and advertising expenditures. The other right hand side variables in these regressions are cash flow, sales and the Q ratio.[6] If institutional ownership has a detrimental effect on investment behavior, it would

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[5] Shareholder myopia means the tendency of shareholders to focus on the behavior of stock prices in the short term as opposed to the long term. Likewise, managerial myopia implies managerial behavior focussed on improving earnings in the short term at the expense of long term growth; for instance, by way of skimping on R and D and maintenance expenditures that would eventually prove to be perilous to the firm's long term prospects.

[6] Q ratio (Tobin's Q) is the ratio of the market value of the firm to the replacement cost of its assets.

have a negative coefficient in these regressions. On the other hand, a positive coefficient would indicate that institutional ownership has a positive effect on the firm's investments.

The next issue is whether institutional ownership matters for performance. So far, there is no empirical evidence to show that institutional control matters for profitability. McConnell and Servaes (1990) found that firms with high institutional ownership have high Q ratios. However, this relationship could also imply that institutional investors invest in firms with high Tobin's Q, rather than the other way around where their presence causes the firm to have a higher Tobin's Q. Also, Demsetz and Lehn (1985) found no correlation between accounting profitability and institutional ownership.

This hypothesis can be tested in a univariate framework by dividing the sample of firms on the basis of the median values of institutional ownership and comparing rates of returns for the two classes of firms. If institutional ownership has a positive effect on performance, firms with high institutional ownership can be expected to have higher rates of returns than firms with low institutional ownership.

The relationship between institutional ownership and performance can be tested in a multivariate framework as well by including institutional ownership as a right hand side variable in standard return on investment regressions. The other variables in these regressions are financial slack, internal finance, net long-term debt, and net issue of equity. If institutional ownership has a favorable impact on performance, it should have a positive sign in these regressions.

A related hypothesis that can be investigated is whether institutional ownership reduces information problems and agency costs between the firm and its outside investors. If

institutional ownership reduces information problems and agency costs, internal finance should have a lesser role in the capital expenditure decisions of firms with high levels of institutional ownership compared to firms with low levels of institutional ownership.[7]

This hypothesis can be tested in a multivariate framework by dividing firms into two categories based on the median values of institutional ownership and running standard capital expenditure regressions for firms with high and low levels of institutional ownership. If it is that institutional ownership reduces information problems and agency costs, the cash flow term should be smaller for firms with high institutional ownership than firms with low institutional ownership in these regressions.

The other interesting hypothesis associated with institutional ownership is whether it can act as an alternate source of capital market discipline, similar to the role played by debt and take-overs. To the extent that the disciplinary pressures of active institutional ownership and debt financing are substitutes, higher degree of institutional ownership would be associated with less debt in capital structures, holding other things constant. In contrast, if corporate discipline can be produced more efficiently through eliciting higher debt ratios, institutional investors may exercise their market influence by attaching higher valuations to firms that validate the existence of managerial discipline by using a higher degree of debt.

This hypothesis can be tested in a univariate framework by dividing the sample on the basis of median values of institutional ownership and comparing the debt-equity ratios for the two sets of firms. If institutional ownership and debt financing are substitutes, firms with high

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[7] See Samuel (1995a) for a more detailed discussion of the relationship between information problems, agency costs, and internal finance.

institutional ownership can be expected to have lower debt-equity ratios than firms with low institutional ownership. If institutional ownership and debt financing are complements instead, firms with high institutional ownership can be expected to have higher debt-equity ratios than firms with low institutional ownership.

Alternatively, institutional ownership can be added as an additional right hand side variable in a standard leverage regression. The other right hand side variables in this regression are size, assets, profits, and the Q ratio. If institutional ownership and debt financing are substitutes, the institutional ownership variable can be expected to have a negative sign and if the two are complements, the sign is expected to be positive. The expected signs for the other independent variables in the regression are assets (+), size (+/-), profits (+/-), and Q (+).

Rajan and Zingales (1994) refers to the ratio of fixed assets to total assets as the tangibility of assets. If a large fraction of a firm's assets are tangible, then assets should serve as collateral, diminishing the risk of the lender suffering the agency costs of debt (like risk shifting). They should also retain more value in liquidation. Therefore, the greater the proportion of tangible assets on the balance sheet (ratio of fixed assets to total assets), the more willing lenders should be to supply loans, and leverage should be higher.

The effect of size on equilibrium leverage is more ambiguous. Larger firms tend to be more diversified and fail less often, so size (log of sales) may be an inverse proxy for bankruptcy. If so, size should have a positive impact on the supply of debt. However, size may also be a proxy for the information outside investors have, which should increase their preference for equity relative to debt. Also, the largest firms are more immune to takeover pressures so they are less likely to be forced to take on debt as a commitment to pay out cash

or refrain from negative NPV projects.

There are also conflicting predictions on the effects of profitability on leverage. Myers and Majluff (1984) predict a negative relationship, because firms will prefer to finance with internal funds rather than debt. Jensen (1986) predicts a positive relationship if the market for corporate control is effective and forces firms to commit to paying out cash by levering up. However, if the market for corporate control is ineffective, managers of profitable firms prefer to avoid the disciplinary role of debt, which would lead to a negative correlation between profitability and debt. On the supply side, suppliers should be more willing to lend to firms with current cash flow.

The Q coefficient could be viewed as a proxy for the growth prospects of the firm as well as conveying information about the worth of the company. For instance, Baumol (1965) notes that the performance of the firm's shares influence the terms on which it can obtain funds from other sources. In particular, lenders are likely to base their risk estimates, and hence their interest terms, in part on the market's evaluation of the company's stocks. Likewise, Morck et al. (1990) argue that since the stock market conveys information about the worth of the company, lenders could use this information to decide how much to lend and on what terms.

-II-

Results

The data on institutional ownership is based on the Spectrum 3 reports compiled by CDA Technologies. This data in turn is based on the 13F filings furnished by institutional investors with the SEC every quarter and includes all institutions with investment control over $100 million. The data used here refers to the last quarter of the year; i.e., as of December 31st. The data on all other variables are taken from Standard & Poor's COMPUSTAT database. Overall, the data refers to 557 U.S. manufacturing firms for the 1985-90 period. Table 1 shows the increasing institutionalization of the stock market during this time.

When the effect of institutional ownership on tangible and intangible investments is conducted in a univariate framework by dividing the sample on the basis of the median values of institutional ownership, capital expenditures and R and D expenditures are found to be higher for firms with high levels of institutional ownership than firms with low levels of institutional ownership (table 2). This is reversed in the case of advertising expenditures. On balance therefore, institutional ownership does not appear to be detrimental to the firm's long-term investments. Overall, institutional ownership seems to have a positive effect on the firm's investment behavior. It is also interesting to note that these results are consistent with the findings of Jones et al. (1990) in that institutional ownership does not seem to induce short-termist behavior amongst corporate management.

Tables 3 and 4 show the details of institutional ownership in various industry groups. In general, the distribution of institutional ownership across industries appear random and is not significantly different across high tech and low tech industries, when the analysis is conducted

in a univariate framework. In other words, there is no evidence from univariate analysis to suggest that institutional investors shun high tech stocks.

It is also interesting to note from table 2 that the share turnover ratio for firms with high institutional ownership is significantly higher than the share turnover ratio for firms with low institutional ownership. This is consistent with the notion that institutional investors tend to be very active traders of their investment portfolios. If the share turnover ratio is driven by liquidity considerations, this evidence supports the hypothesis advocated by Coffee (1991) and others that liquidity rather than control is the primary investment objective of institutional investors. Also, this finding of firms with high institutional ownership having high share turnover ratios is incongruent with the belief in the literature that larger equity stakes tend to make institutional investors less liquid. Finally, this positive relationship between institutional ownership and share turnover ratio suggests that the growing institutionalization of the stock market has also contributed to the steady increase in the share turnover ratio.

The evidence with regard to the effect of institutional ownership on investment is somewhat mixed when it comes to the regressions that incorporates fixed firm and year effects (tables 5, 6, 7).[8] In capital expenditure regressions, the institutional ownership effect is positive. The higher the level of institutional ownership, the greater the level of capital expenditures. In advertising regressions, institutional ownership has no effect. In the R and D regressions however, the institutional ownership variable turns out to be negative and significant in two of

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[8] In general, the relationship is specified as

$Y_{it} = \beta_0 + \beta_{it}X_{it} + \alpha_i + v_t + e_{it}$ where α_i is the individual firm effect and v_t is the year effect. The standard approach for sweeping out fixed effects, by transforming variables to deviations from their firm-specific means, has been used in this paper. These estimates are also referred to as the "within-group" estimate in the literature. See Hsiao (1986) for a more detailed discussion of this approach.

the four specifications. It is insignificant in the other two R and D regressions. In this instance therefore, it does turn out that institutional ownership has a detrimental effect on the R and D expenditures of firms. This result also implies that institutional ownership contributes to the firm's underinvestment in R and D expenditures and therefore managerial myopia. In this regard, these results are contrary to the evidence in Jarrel et al. (1985) that was based on a sample of 324 companies for the 1980-83 period. Given that the results presented here are for the 1985-90 period, it could well be that these conflicting results are due to the different time-periods involved.

As noted elsewhere, it is the case that the results from the multivariate analysis are more reliable than the results from the univariate analysis in that the latter incorporates a broader set of factors including fixed firm and year effects. Therefore, the evidence from here can be summarized as saying that institutional ownership has a positive effect on capital expenditures, negative effect on R and D expenditures, and no effect on advertising expenditures.

In order to study the effect of institutional ownership on firm performance in a univariate framework, firms were divided on the basis of median value of institutional ownership and the returns on investment were compared (table 8). In all instances, the returns are not significantly different across the two classes of firms and therefore implies that institutional ownership has no implications for performance. This finding is therefore consistent with the evidence of Demsetz and Lehn (1985) in that institutional ownership is unrelated to accounting profits. On the other hand, the evidence in table 2 does show that firms with high institutional ownership tend to have high Q ratios compared to firms with low institutional ownership. This finding is consistent with the results of McConnell and Servaes (1990), though, as noted before, the

direction of causality is not clear.

The relationship between institutional ownership and firm performance was also tested in a multivariate framework by running standard return on investment regressions. These results are shown in table 9. These regressions also include fixed firm and year effects. In all the regressions, the institutional ownership variable is insignificant and therefore reinforces the finding from the univariate analysis that institutional ownership has no implications for return on investment and therefore firm performance. All other variables in these regressions have the expected signs.

The relationship between institutional ownership and the Q ratio was explored in some detail (table 10). As shown in the table, these results are somewhat similar to the nonlinear relationship that Morck et al. (1988) found between insider ownership and the Q ratio. Q ratio rises with institutional ownership, before falling when the ownership rises above the 50 percent mark.

Table 11 summarizes the results of the capital expenditure regressions with fixed firm and year effects that explore the role of institutional ownership in reducing information problems and agency costs between the firm and outside investors. Given that the cash flow term is identical for firms with high and low levels of institutional ownership, there is no support for the hypothesis that institutional ownership reduces information problems and agency costs. These results therefore bolster the earlier finding that institutional ownership has no implications for firm performance.

When the capital market discipline role of institutional ownership was investigated in a univariate framework by dividing the sample on the basis of median institutional ownership, the

leverage ratios were not found to be significantly different across the two groups of firms with high and low levels of institutional ownership (table 12). In a multivariate framework however, the institutional ownership variable turns out to be negative and significant in the leverage regressions (table 13). In other words, firms are characterized by lower degrees of debt in their capital structures with high levels of institutional ownership. This supports the hypothesis that institutional ownership and debt financing are substitutes. This also suggests that the monitoring and disciplinary activities of institutional investors, via the corporate governance process, may function as a substitute for the disciplinary and signalling roles of debt. This result also provides a rationale for the increasing activism of institutional investors in corporate governance issues, especially public pension funds like CalPERS and College Retirement Equities Fund (CREF). More generally, this finding is consistent with the view that institutional activism has replaced takeovers as the central mechanism of corporate governance in the 1990s. However, it should be pointed out that the results presented here show no evidence that the increasing activism of institutional investors in the corporate governance process has improved firm performance in practice.

Conclusions and Discussion

The evidence regarding the role of institutional investors is mixed. While institutional ownership has a positive effect on capital expenditures, it appears to have a negative effect on R and D expenditures and no effect on advertising expenditures. Therefore, institutional ownership can also be considered as contributing to the firm's underinvestment in intangible assets. The results also suggest that the monitoring and disciplinary activities of institutional investors, via the corporate governance process, may function as a substitute for the disciplinary

and signalling roles of debt. However, there is no definite evidence to show that institutional ownership improves firm performance per se.

What then are the implications of this evidence regarding the role of institutional investors in corporate governance in the U.S. for other countries, especially the developing countries? The discussion and empirical evidence in this paper seems to suggest that the fundamental reason for institutional passivity in corporate governance affairs is rational apathy rather than political and legal constraints. As shown by Coffee (1991), this conclusion is reaffirmed when the experience of other countries is taken into account. For instance, the five percent limitation on voting stock ownership is not unique to U.S. banks; similar regulation exists in Japan as well as other economies.

Also, in other economies--for example, Germany and the UK--in which substantive limitations on bank ownership of securities have not existed, financial institutions still have not exceeded the five percent level. Perhaps the need to diversify investments limit banks in these countries, or perhaps other factors--such as the need for liquidity, possible conflicts of interest, or fear of business or political reprisals--cause them to halt ownership of voting stock at this low level. Alternatively, banks may not view equity ownership as a business at which they have a comparative advantage.

Even within the United States, banks have not exploited the statutory powers they possess to own and hold securities--possibly because they have not found such ownership to be profitable. Although non-banking activities of banks were virtually unregulated until the passage of the bank Holding Company Act of 1956, banks made little use of these powers. After the Act's passage, real constraints were placed on the ability of bank holding companies to make

acquisitions, but even the substantial powers that remain are not exploited. In any event, it is difficult to assign a causal relationship to legal restrictions on ownership when American financial institutions historically have not used, and today continue to resist from using, the considerable discretion that the law gives them.

Therefore, the fact of institutional investor passivity stemming from rational apathy in the case of the U.S. could imply a similar conclusion in other settings too. Having said this, it should be noted that the behavior of institutional investors in the public sector, say public pension funds, could well vary in other settings, especially developing economies.

In this regard, India offers an interesting example. The major institutional investors in India--Unit Trust of India (UTI), insurance companies and development banks[9]--all belong to the public sector. Over the years, these institutional investors have become important owners of equity in the Indian corporate sector, in part due to the legal provision that enables institutional investors to convert long-term borrowings to equity holdings at favorable terms.[10] Consequently, institutional investors have become important holders of corporate equity and critical players in the Indian market for corporate control. In some of the heated takeover contests of the past, it would seem that institutional investors were guided more by political considerations than

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[9] Industrial Development Bank of India (IDBI), Industrial Financial Corporation of India (IFCI), Industrial Credit and Investment Corporation of India (ICICI), and Industrial Reconstruction bank of India (IRBI) are the main development banks in India that provide long-term finance to the Indian corporate sector.

[10] Very broad estimates of the stock-holding pattern are as follows: Controlling management/family: 25-30 percent; institutions (development banks, UTI, life insurance companies etc.): 35-45 percent; public (free float): 35-40 percent. See George (1994).

maximization of shareholder value.[11] Therefore, in a developing country setting where institutional investors are part of the public sector, political constraints--albeit of a different sort than the one discussed in the U.S. case--may be important with regard to the role that institutional investors play in corporate governance issues. Having said this, it should be noted that except for some infrequent forays into the market for corporate control, institutional investor activism in India is practically non-existent; more often than not, they vote with existing management and show no particular concern about the performance of a given firm in relation to the overall market and the industry.

Without doubt, no other developed or developing country approximates anywhere close to the U.S. market for corporate control, especially with regard to hostile takeovers. Many commentators have argued that institutional investors played an important role in the takeover battles of the 1980s and led to the "commoditization" of the market for corporate control.[12]

The other interesting example of institutional investors in a developing country setting comes from Chile. Chile reformed its social security system in May 1981, from a social pension system to a private system of personal pension plans. It replaced an insolvent social pension system that operated on a "pay-as-you-go" basis with a fully-funded pension system based on

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[11] Perhaps the best known of these is the Escorts company case from the 1980s which pitted the family ownership against a Non-resident Indian business group, with the controlling share held by institutional investors. Likewise, institutional investors were key players in the battle for the control of Larsen & Toubro company between the incumbent professional management and another Indian business group. More recently, institutional investors also played a critical role in the tussle between the Indian CEO and the parent management of ITC company--a subsidiary of a British multinational.

[12] See Jacobs (1991) for instance.

individual capitalization accounts. It is essentially a defined contribution system[13] based on individual capitalization accounts, where pension benefits depend on the contributions made over a person's working life and the investment income earned on accumulated balances. While the system is government mandated and regulated, it is managed completely private by a number of authorized pension management companies, known as Administradoras de Fondos de Pensiones or AFPs.[14] These pension funds played a significant role in the privatization of the state-owned enterprises in the second half of the 1980s. Over the first ten years of its operation, the investments of the AFP system have been insulated from the vicissitudes of financial markets by the strict investment rules that limited exposure to corporate equities. However, investment rules have been relaxed since to allow grater allocation of funds into corporate equities. Also, AFPs have been allowed to invest in foreign securities recently.

As noted by Vittas and Iglesias (1992), the contribution of AFPs to the dispersion of corporate ownership has been rather limited, mainly because of the unwillingness of Chilean corporations to accept a dilution of control. Likewise, the role of pension funds in corporate governance is limited to privatized utilities and practically nonexistent at the moment. In part, this is due to the general fact that in countries where pension funds invest mostly in bonds and other debt instruments, their role in corporate governance is limited to creditor involvement when firms face financial difficulties and are unable to meet the repayment conditions and other covenants of bond issues. However, the role of Chilean pension funds in corporate governance

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[13] Historically, company pension schemes have been defined benefit plans, conceived initially as personnel management tools to attract skilled workers, reward loyalty, and facilitate retirement of older workers. See Hannah (1986) for a detailed description of the UK and Williamson (1992) for the US.

[14] See Vittas and Iglesias (1992) for a more detailed description of the Chilean pension reform.

issues is likely to increase in the future, given that their ownership of corporate equity is likely to increase.

It is also interesting to consider the role of pension funds in corporate governance in the transitional economies briefly.[15] The fundamental challenge facing transitional economies today is enterprise restructuring. In these economies, it is unlikely that large private pension funds will emerge and become important players in the capital markets unless the public pension systems in these countries are restructured and downsized. In the interregnum, the burden of enterprise restructuring and the leading role in corporate governance is likely to fall on the state, banks, investment funds, managers and workers (in some instances, foreign companies and individual investors) who are likely to be the major owners of large corporations.

Policymakers in developing countries could certainly benefit from the lessons gleaned from institutional investors in the U.S., even though capital markets are relatively underdeveloped in most developing countries compared to the U.S.. For sure, the picture is changing given the current boom in emerging markets, thanks to deregulation and other policy reforms in the developing world and the emergence of international portfolio investors.

This paper suggests that institutional investors are complex institutions, so that care must be taken while designing the regulatory and investment environment in which they operate. This study also suggests that the institutionalization--the progression from individual to institutional investor domination--of the stock market that has taken place in the U.S. and some other developed countries is a natural, gradual process that developing countries will have to deal with

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[15] See Vittas and Michelitsch (1995) for a discussion of the role of pension funds in corporate governance in Central Europe and Russia.

in the future as their financial markets get reformed and deepened. The evidence presented in this paper suggests that there is a fundamental conflict between liquidity and control as the primary investment objective of institutional investors. In the case of the U.S., liquidity has proved to be the dominant investment objective and has led to the mergence of "exit" rather than "voice" as the preferred option for institutional investors with regard to corporate governance issues.[16]

However, this scenario has been changing recently with "voice" beginning to become a more important objective for institutional investors with regard to corporate governance issues. This sort of institutional investor activism has taken on many forms, including Board shake-ups, proxy initiatives, "relationship investing", progress report on underperforming companies etc..[17] Even though the evidence presented in this paper suggests that institutional ownership is unrelated to firm performance, it does seem that institutional investor activism has replaced takeovers as the central mechanism of corporate governance in the U.S. in the 1990s.[18]

If this finding is combined with the evidence that the market for corporate control is not efficient and does not necessarily maximize shareholder value, the implication for developing countries appears to be to encourage institutional ownership of equity and undertake measures

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[16] The "exit-voice" paradigm is originally due to Hirschman (1970).

[17] The fight for good governance in the U.S. has been spearheaded by public pension funds, in particular the California Public Employees Retirement System (CALPERs) and College Retirement Equities Fund (CREF). There are also organizations like the Investor Responsibility Research Center (IRRC) and Institutional Shareholder Services (ISS) that specialize in the monitoring corporate governance practices of large corporations.

[18] In part, this lack of relationship between institutional ownership and firm performance may be due to the fact that the data used in this study stops at 1990. Recent developments suggest a growing role by institutional investors in board room shake-ups in leading U.S. corporations like General Motors, IBM, Westinghouse, K-Mart etc..

that would promote institutional investor activism.[19]

The evidence in this paper also suggests that institutional ownership has a positive effect on capital expenditures, negative effect on R and D expenditures, and no effect on advertising expenditures. To the extent that institutional ownership contributes to the firm's underinvestment in R and D expenditures, it does play a role in exacerbating managerial myopia. This is a rather worrisome prospect for developing countries, since market undervaluation of high tech firms could be detrimental to their goal of enhancing technological capabilities.[20] One alternative for developing countries is to come up with initiatives like venture capital to support high tech enterprises.

The evidence with regard to the capital market discipline role of institutional ownership suggests that institutional ownership and debt financing are substitutes. Consequently, the monitoring and disciplinary activities of institutional investors, via the corporate governance process, may function as a substitute for the disciplinary and signalling role of debt. This finding has some interesting implications for developing countries. This is because firms in developing countries tend to have more debt in their capital structures compared to firms in developed countries.[21] Given that institutional ownership and debt financing are substitutes, the

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[19] The discussion on the causes and consequences of takeovers is controversial and inconclusive. While Manne (1965), Jensen and Meckling (1976), Fama (1980), Jensen and Ruback (1980), and others have argued that the market for corporate control promotes efficiency and enhances shareholder wealth, Mueller (1986, 1987), Ravenscraft and Scherer (1987), and others have disputed these claims and have argued that takeovers are more likely to destroy firm value.

[20] Market undervaluation of high tech firms also stems the fact that since R and D is treated as an expenditure and not as an investment, it has an adverse effect on firm earnings which in turn leads to a negative market reaction.

[21] See Samuel (1995c) for a comparison of Indian and U.S. firms. Based on an analysis of sources and uses of funds, the study finds that internal finance played a greater role for U.S. firms than Indian

implication is that an increasing institutionalization of the stock market in developing countries would have favorable implications for the corporate governance process in these countries.

In conclusion, policymakers all over the world have to confront the issue of increasing institutional ownership of corporate equity sooner or pater. Suitable policy frameworks need to be devised to encourage institutional investor activism. A key element in this process would be to enhance communication amongst institutional investors so as to overcome the free-rider problem associated with shareholder monitoring. The U.S. experience cannot be generalized to other countries in every instance, but it does demonstrate that institutional investor activism can be a viable alternative to takeovers with regard to corporate governance issues. This in turn is important to curb the excesses of managerial discretion and maximize shareholder value.

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firms so that external finance played a greater role for Indian firms than U.S. firms. Within external finance, the contribution of external equity was found to be similar for Indian and U.S. firms; however, external debt played a much more important role for Indian firms than U.S. firms.

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Table 1: Trends in institutional ownership

	Institutional ownership	NT
1985	0.356	548
1986	0.379	554
1987	0.402	557
1988	0.406	557
1989	0.413	555
1990	0.417	558
All Years	0.395	3329

Note: Institutional ownership is the ratio of value of shares held by institutional investors to the total value of shares outstanding.

Table 2: Institutional ownership and investments

	High institutional ownership	**Low institutional ownership**
Share turnover ratio	0.85*	0.54
Capital expenditures/Replacement cost	0.11*	0.10*
Q ratio	2.31*	2.08
Capital expenditures/Sales	0.07*	0.06
Advertising/Sales	0.03*	0.04
Advertising/Replacement cost	0.06*	0.09
R and D/Sales	0.05*	0.03
R and D/Replacement cost	0.08*	0.07
NT	477	454

Note: Share turnover ratio is the ratio of number of shares traded to the number of shares outstanding.
* indicates that the ratios are significantly different at the 1% level.

Table 3: Institutional ownership by industry

SIC Code	Industry	Institutional ownership	NT
20	Food and Kindred Products	0.315	167
21	Tobacco Products	0.403	6
22	Textile Mill Products	0.290	72
23	Apparel and Other Textile Products	0.337	48
24	Lumber and Wood Products	0.273	42
25	Furniture and Fixtures	0.296	42
26	Paper and Allied Products	0.453	132
27	Printing and Publishing	0.422	185
28	Chemicals and Allied products	0.447	336
29	Petroleum and Coal Products	0.416	144
30	Rubber and Misc. Plastic Products	0.374	114
31	Leather and Leather Products	0.287	47
32	Stone, Clay, and Glass Products	0.393	47
33	Primary Metal Industries	0.398	186
34	Fabricated Metal Products	0.349	220
35	Industrial Machinery and Equipment	0.431	436
36	Electronic & Other Electrical Equipment	0.386	329
37	Transportation Equipment	0.423	212
38	Instruments and Related Products	0.384	264
39	Miscellaneous Manufacturing Industries	0.341	54
20-39	All Manufacturing	0.395	3329

Note: Based on the Standard Industrial Classification (SIC) code.
Institutional ownership is the ratio of value of shares held by institutional investors to the total value of shares outstanding.

Table 4: Institutional ownership by industry

Industry	Institutional ownership	NT
Chemicals	0.423	420
Pharmaceuticals	0.431	174
Electrical	0.390	388
Computers	0.399	221
Machinery	0.404	847
Miscellaneous	0.361	926
High-tech Industries	0.402	783
Low-tech Industries	0.390	2193
All Industries	0.395	3329

Note: Based on the industrial classification in Hall (1993). The details are as follows. Chemicals-SIC 28 (excl. 283,284), SIC 29, 30; Pharmaceuticals and Medical Instruments-SIC 283, 284, 384; Electrical-SIC 36 (excl. 365-367), SIC 38 (excl. 384); Computers-SIC 357, 365-367; Machinery-SIC 33-35 (excl. 357), SIC 37 (excl. 372, 376); Miscellaneous-SIC 20-27, 31, 32, 39.
High-tech: Electrical, Computers, and Pharmaceuticals. Low-tech: Chemical, Machinery, and Miscellaneous.
Institutional ownership is the ratio of value of shares held by institutional investors to the total value of shares outstanding.

Table 5: Institutional ownership regressions: Capital expenditures

	(i)	(ii)	(iii)	(iv)
Cash flow	0.048(3.18)	0.022(1.58)	0.016(1.38)	0.026(2.13)
Sales	-0.030(-7.15)	-0.053(-13.35)	-0.041(-14.14)	-0.016(-5.12)
Q	0.003(2.35)	-0.003(-1.86)	0.006(4.50)	0.007(4.64)
Institutional ownership	0.045(4.02)	0.031(2.89)	0.038(3.58)	0.048(4.26)
NT	3329	3329	3329	3329
Adjusted r^2	0.025	0.053	0.061	0.017

Notes: Institutional ownership is the ratio of value of shares held by institutional investors to the value of shares outstanding.
(i) cash flow and sales divided by total assets, capital expenditures divided by replacement cost of assets; (ii) cash flow and sales divided by total assets, capital expenditures divided by sales; (iii) cash flow and sales divided by replacement cost of assets, capital expenditures divided by sales; (iv) cash flow and sales divided by replacement cost of assets, capital expenditures divided by replacement costs.
The regressions include fixed firm and year effects.
T-statistics are shown in parentheses.

Table 6: Institutional ownership regressions: Advertising expenditures

	(i)	(ii)	(iii)	(iv)
Cash flow	-0.027(-2.05)	-0.004(-0.92)	-0.012(-3.50)	-0.064(-7.12)
Sales	0.009(2.22)	-0.005(-3.70)	-0.006(-6.20)	0.046(18.25)
Q	0.008(7.26)	-0.001(-1.53)	0.001(2.13)	0.003(3.40)
Institutional ownership	0.011(1.04)	-0.003(-0.82)	-0.002(-0.46)	0.008(0.93)
NT	1421	1421	1421	1421
Adjusted r^2	0.038	0.008	0.004	0.221

Notes: Institutional ownership is the ratio of value of shares held by institutional investors to the value of shares outstanding.
(i) cash flow and sales divided by total assets, advertising expenditures divided by replacement cost of assets; (ii) cash flow and sales divided by total assets, advertising expenditures divided by sales; (iii) cash flow and sales divided by replacement cost of assets, advertising expenditures divided by sales; (iv) cash flow and sales divided by replacement cost of assets, advertising expenditures divided by replacement costs.
The regressions include fixed firm and year effects.
T-statistics are shown in parentheses.

Table 7: Institutional ownership regressions: R and D expenditures

	(i)	(ii)	(iii)	(iv)
Cash flow	-0.012(-1.93)	-0.016(-5.27)	-0.018(-7.02)	-0.008(-1.71)
Sales	0.003(1.69)	-0.006(-6.13)	-0.002(-3.17)	0.027(18.75)
Q	0.004(7.10)	-0.001(-1.91)	0.001(2.21)	0.0003(0.57)
Institutional ownership	-0.011(-2.41)	-0.002(-0.70)	-0.001(-0.50)	-0.014(-3.09)
NT	2111	2111	2111	2111
Adjusted r^2	0.025	0.052	0.052	0.166

Notes: Institutional ownership is the ratio of value of shares held by institutional investors to the value of shares outstanding.
(i) cash flow and sales divided by total assets, R and D expenditures divided by replacement cost of assets; (ii) cash flow and sales divided by total assets, R and D expenditures divided by sales; (iii) cash flow and sales divided by replacement cost of assets, R and D expenditures divided by sales; (iv) cash flow and sales divided by replacement cost of assets, R and D expenditures divided by replacement costs.
The regressions include fixed firm and year effects.
T-statistics are shown in parentheses.

Table 8: Institutional ownership and return on investment

	High institutional ownership	**Low institutional ownership**
Return on equity	0.149	0.157
Return on assets	0.075	0.079
Return on sales	0.054	0.064
Accounting return I	0.056	0.059
Accounting return II	0.062	0.071
NT	276	281

Note: Accounting return I is the total returns before tax to debt and equity (interest payments plus earnings on equity divided by the value of debt plus equity); in this measure the market value of debt and equity are used. Accounting return II is similar to return I, except that the book value of debt and equity rather than the market value of equity are used. These two return measures are based on Ando and Auerbach (1988, 1990).

Table 9: Institutional ownership and return on investment

	Return on equity	**Return on assets**	**Return on sales**	**Q**
(a)	0.152(2.48)	0.045(1.97)	0.169(5.27)	-0.069(-0.08)
(b)	2.316(24.01)	1.170(32.38)	1.051(20.87)	3.910(2.87)
(c)	0.188(7.14)	-0.042(-4.26)	0.045(3.25)	-0.251(-0.67)
(d)	-0.378(-9.59)	0.034(2.32)	0.080(3.90)	-1.048(-1.88)
(e)	0.003(0.22)	0.004(0.36)	0.007(0.96)	-0.252(-1.23)
Adjusted r^2	0.511	0.627	0.450	0.016
NT	1159	1159	1159	1159

Notes: (a) is the ratio of financial slack (internal finance minus capital expenditures) to total assets; (b) is the ratio of internal finance to total assets; (c) is the ratio of net long-term debt issued to total assets; (d) is the ratio of net equity issued to total assets; and (e) is the percent of institutional ownership.
The regressions include fixed firm and year effects.
T-statistics are shown in parentheses.

Table 10: Institutional ownership and Q ratio

Institutional ownership	Average Q	Standard deviation	NT
0-0.1	1.47	1.61	254
0.1-0.2	1.46	1.28	422
0.2-0.3	1.61	1.45	452
0.3-0.4	1.72	1.39	547
0.4-0.5	2.16	2.14	606
0.5-0.6	2.02	1.61	507
0.6-0.7	1.95	1.26	406
0.7-0.8	1.79	1.28	128
0.8-0.9	1.95	0.81	7

Note: Institutional ownership is the ratio of value of shares held by institutional investors to the value of shares outstanding.

Table 11: Capital expenditures and institutional ownership

	Low institutional ownership	**High institutional ownership**
Q	0.002(0.34)	0.002(0.33)
Cashflow	0.059(1.42)	0.059(1.42)
Sales	0.005(0.65)	0.005(0.65)
NT	279	278
Adjusted r^2	0.029	0.029

Note: Table shows parameter estimates from regressions with (capital expenditures/ replacement cost) on the left hand side, and Q, (cashflow/replacement cost), and (sales/replacement cost) on the right hand side.
The regressions include fixed firm and year effects.
T-statistics are shown in parentheses.

Table 12: Institutional ownership and leverage ratios

	High institutional ownership	**Low institutional ownership**
(Debt/Equity)	0.548	0.466
(Debt/Assets)	0.170	0.164
(Debt/Book value of debt and equity)	0.221	0.208
(Debt/Market value of debt and equity)	0.176	0.168
NT	276	281

Note: * indicates that the ratios are significantly different at the 1% level.

Table 13: Institutional ownership and leverage regressions

	I	II
Q	0.016(5.62)	0.016(5.62)
Log (Sales)	0.035(5.24)	0.038(5.68)
(Gross capital stock/ Assets)	0.345(10.19)	0.346(10.23)
(Profits/Assets)	-0.034(-1.19)	-0.033(-1.14)
Institutional ownership		-0.001(-2.85)
Adjusted r^2	0.078	0.079
NT	3324	3324

Note: Institutional ownership is the ratio of value of shares held by institutional investors to the value of shares outstanding.
The regressions include fixed firm and year effects.
T-statistics are shown in parentheses.

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